

# ***AUTOGUARD INTRUSION DETECTION***

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# AUTOGUARD INTRUSION DETECTION

## INTRODUCTION

### *High Risk Piracy Areas*

Strategically placed wireless PIR motion detectors will alert security staff to possible intrusions without exposing ship's staff to unnecessary risks

### *In Port Security*

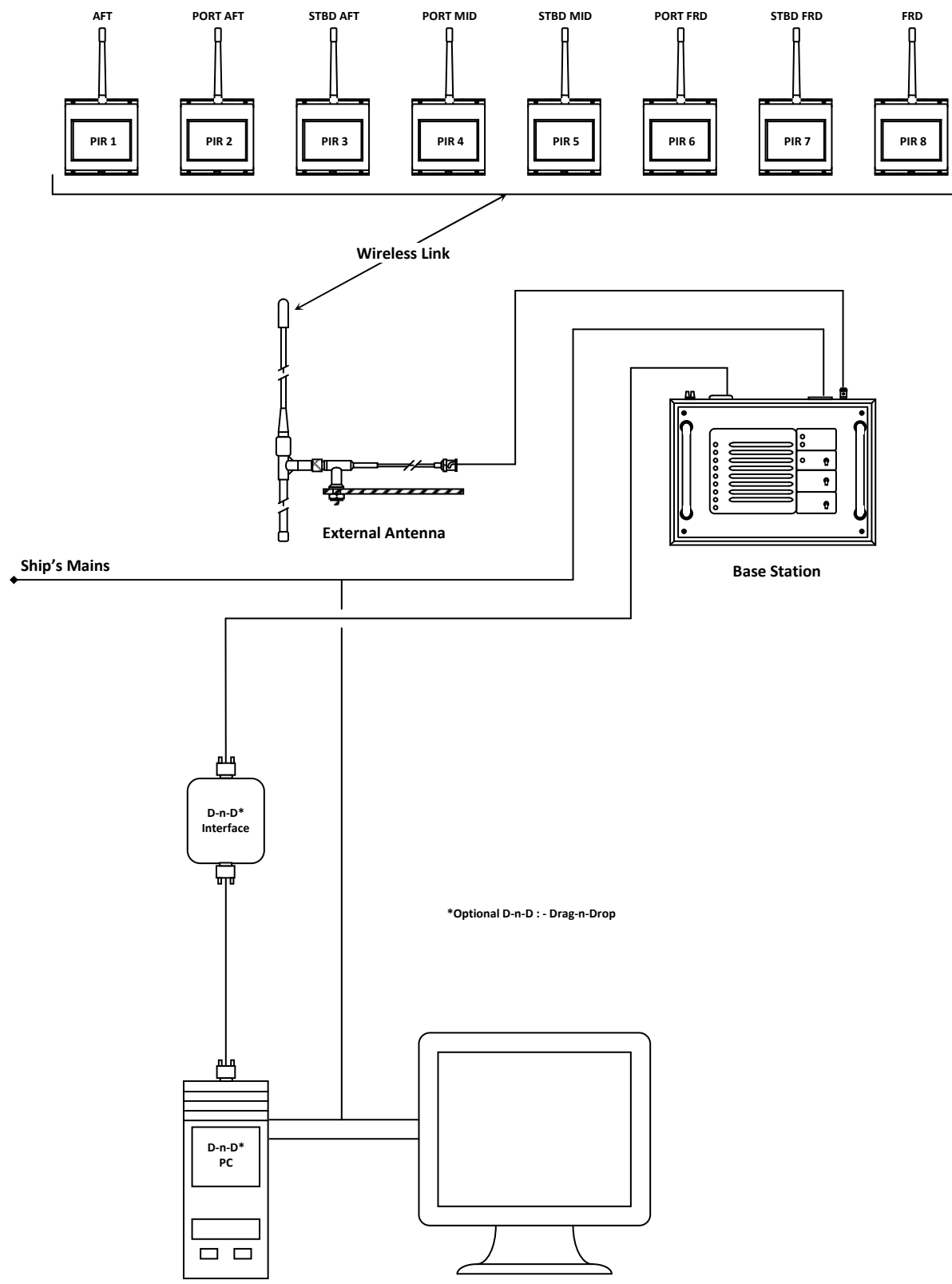
Detect unwanted guests who try to gain access to your vessel. Protect the relatively un-patrolled outboard side of the vessel.

### *Stowaway Prevention*

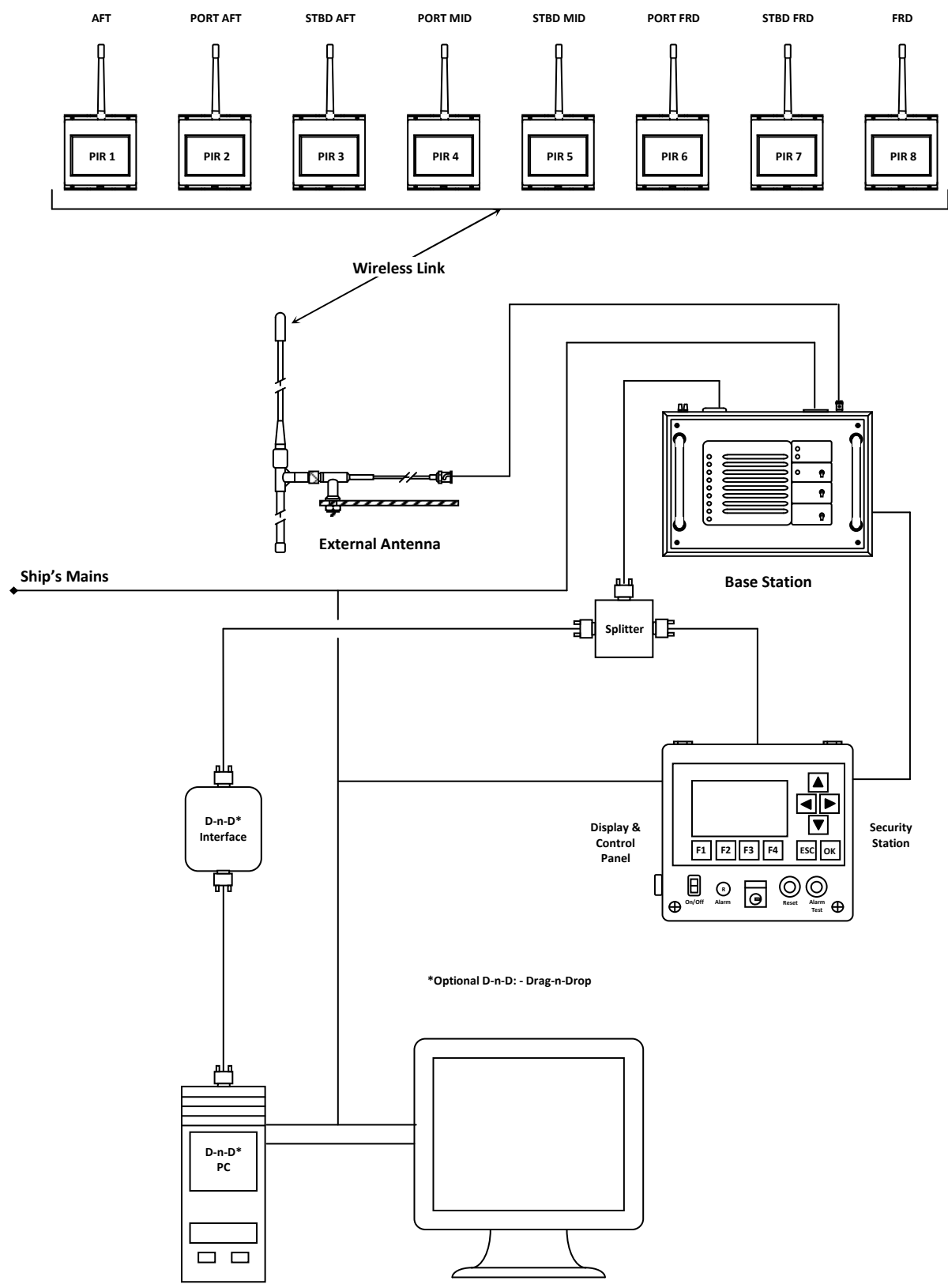
As the stowaway patrol is undertaken, deploy PIR motion sensors to protect areas already declared clear. Any further movements in these areas could well be stowaways.

### *Crew Safety Monitoring*

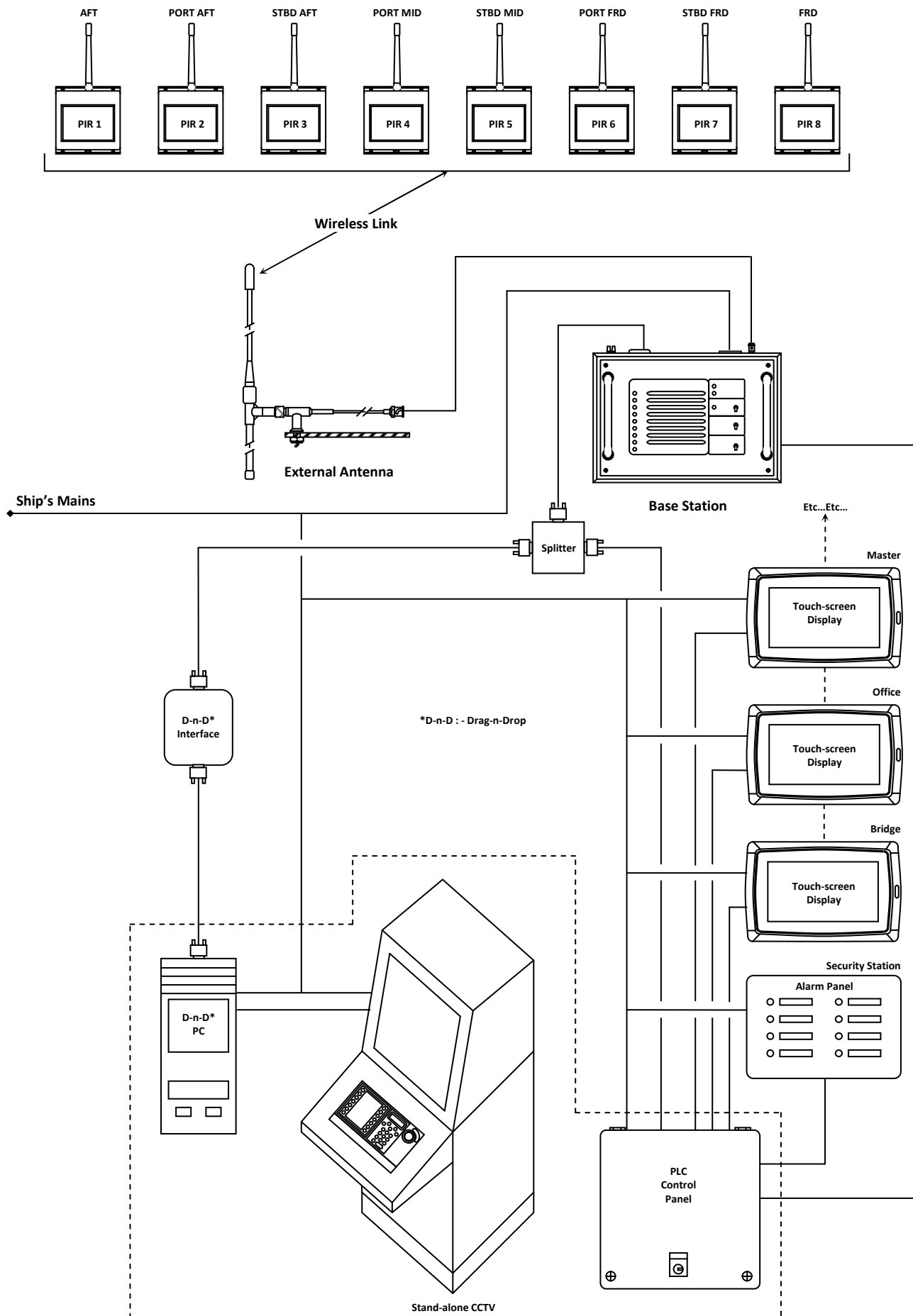
Protect against inadvertent entry into unauthorised spaces i.e. confined spaces, paint lockers, cofferdam...etc.



NOT TO SCALE



NOT TO SCALE



**NOT TO SCALE**

***Part A***

***AUTOGUARD***

**Wireless Intrusion Detection System**

***Part B***

***AUTOGUARD***

**Optional Drag-n-Drop System**

## ***Part A***

# ***AUTOGUARD*** **Wireless Intrusion Detection System**



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## ***User Manual***

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### ***Intrusion Detection***

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## ***System Description***

### ***1.1 Detector Heads***

#### ***1.1.1 General***

Each detector head is a self-contained battery powered unit capable of transmitting a coded alarm signal to the central monitoring station. Any number of similarly coded heads or a repeater may be deployed in up to eight separate zones.

Each sensor is capable of continuous operation for up to about 10 years (see Section 3. for battery endurance). Alarm response is by way of passive infra red detection (PIR). The active alarmed area is a 30m beam detection zone from the sensor faceplate. This gives excellent selective positioning control when deploying the units, for example, running along a ship's open decks, across a hatch entrance way, gangway access point.



The units have a protective faceplate that also acts as an on/off switch.

Note: Environmental conditions may reduce effective operating distance

Once the heads are activated they are ready for immediate deployment as and when required. Optimum detection is achieved when mounted approximately 2m above the deck and positioned so that target movement will be across the zone rather than towards or away from the unit.

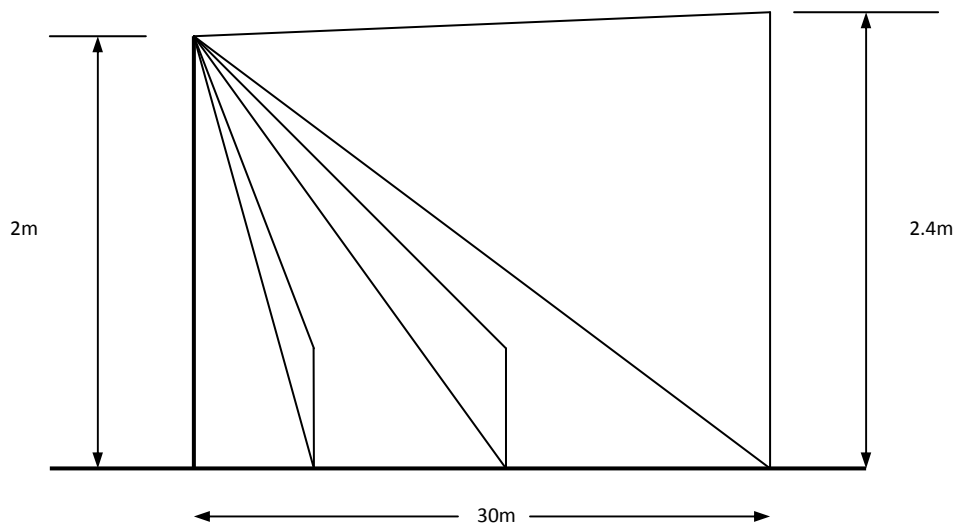
It is important to avoid situations where two or more heads can trigger simultaneously as this can corrupt the coded transmission to the base station. Once deployed the detection zones can be "walk-tested" using the base station on battery power.

Note: Once activated the head has a reset time of approximately 5 seconds after movement has ceased.

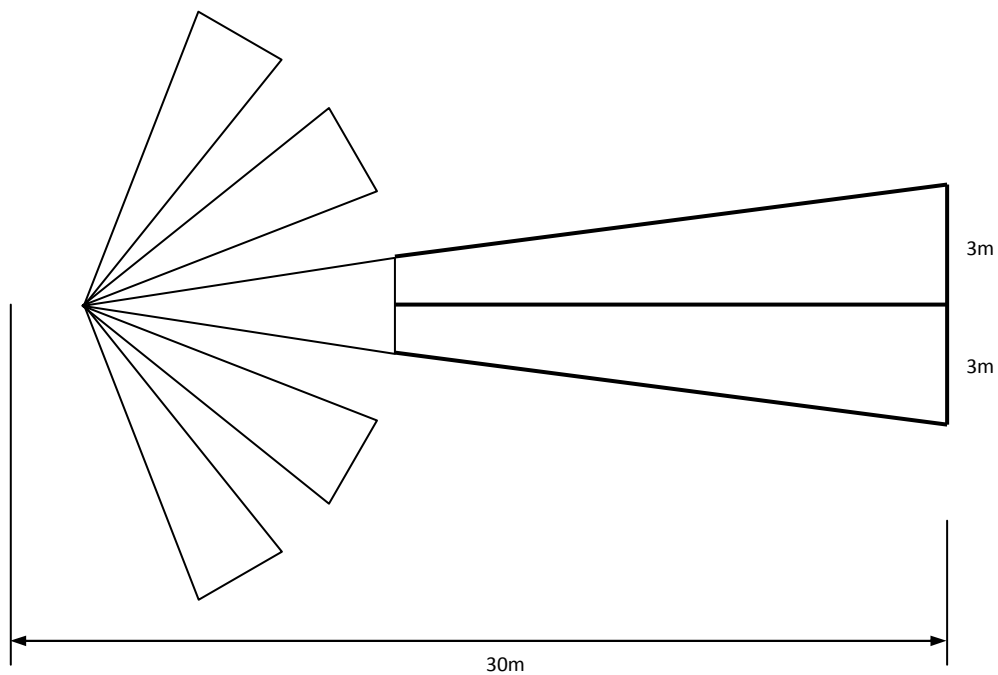
Detector heads should be tested/activated periodically otherwise after prolonged periods of inactivity the heads 'go to sleep' and will require the cover to be replaced to reset the detector.

## 1.1.2 Detection Zones

The detection zones are indicated in the diagrams below: -



**Detection Zone – Side View**



**Detection Zone – Plan View**

## ***Intrusion Detection***

**AUTOGUARD****1.2 Receiver / Base Station****1.2.1 General**

The unit is lightweight and is intended for mains operation but also contains an internal rechargeable battery capable of providing up to 36 hours of portable / standby use, “walk-testing” for example. The battery is charged automatically during mains operation.

The base station can also be powered by an external 12V DC supply, the internal battery is charged during this mode of operation (this facility is available to special order only).

A single on/off switch, this illuminates the yellow power indicator next to the switch.

The alarm sounder may be set to one of three modes ‘Off’, ‘Steady’ or ‘Pulse’ by way of the audible alarm switch.

The nine bank LED display indicates an alarm condition by the individual zone numbers and remains illuminated until the reset switch is activated. The incoming alarm signal also triggers the sounder depending on the mode setting.

The reset switch is used to extinguish any illuminated zone LEDs as and when required. It will also reset the low battery warning. The sounder will operate again if a new alarm is received from a zone already illuminated on the LED display prior to reset.

The low Battery indicator illuminates on receipt of low battery warning transmitted by any of the detection heads. (See notes on Detector Head Batteries).

**1.2.2 Alarm Outputs**

On the rear of the unit either a two pole terminal is fitted for providing a single common output for all alarms or a 15 pin socket is fitted for additionally supplying individual outputs for all eight alarms. The individual outputs can be used, for example, to position CCTV cameras, while the common alarm is suitable for activating existing alarm systems.

**AUTOGUARD****Base Station Alarm Outputs:-**

A universally normally open contact available via the two pole terminal posts. This output closes momentarily on receipt of a valid alarm signal from any of the 8 zones.

**15 pin "D" Connector**

Pin 1 – 7	Alarms 1 – 7
Pin 9	Output common for all alarms
Pin 8 & 10 – 14	N/C
Pin 15	Alarm 8

These outputs are 'clean', normally open giving momentary closure when a signal is received from any zone

**1.2.3 System Code Transmission & Settings**

On activation each Guardian detection head transmits two separate signal codes back to the base station. A third low battery code will be transmitted when required.

**1.2.4 Storage / Carry Case**

When not in use the system may be stored in a hard sided case for protection and ease of transportation and deployment.

## ***2. Operation & Deployment***

### ***2.1 General***

Guardian is a completely self-contained portable intruder detection system demanding minimal skill during deployment and subsequent operation. Capable of monitoring up to eight separate zones from a single monitoring unit it provides invaluable protection for a vast range of security operations where mobility and versatility are the prime operational requirements.

The system is supplied in a robust protective case complete with the following items: -

- A battery / mains operated base station monitoring unit complete with alarm outputs and integrated radio receiver.
- Eight coded battery powered detection heads, for portable deployment on the ship as required, capable of transmitting a radio signal back to the base station giving location number of alarmed area
- Operating instructions

### ***2.2 Detector Deployment***

1. Remove the detector from its carry case
2. Install the detector(s) in their final locations:
  - i. On a suitable bracket on the ship's structure / side rails
  - ii. Free standing on its tripod base
  - iii. Attached to a convenient point by the bungee cords
3. Remove the protective cover from the detector

## **2.3 Receiver / Base Station Deployment**

- Power-up the base station by connecting the mains lead into the back of the unit
- Switch 'On' the base station, the mains LED will glow yellow indicating power is supplied to the unit (The charging LED may also glow if the internal rechargeable batteries are at a certain voltage level. This LED indicates the unit is also being charged; this will not effect the application.
- With all or several detector units deployed, you may have several alarms showing, this is normal because they would have been activated during installation. Activating the reset button should clear these alarms, if not, check the detectors set-up.
- It is always required that a 'walk-test' be carried out on each detector location.
- Once the base station is activated you can choose whether you want the activation audio able or silent. In either mode the alarm LED will illuminate on alarm
- The base station can be operated for up to 36 hours on its own internal rechargeable batteries, although it is normal to run the system from mains.

## **3. Detector Battery Endurance**

	Days	Years
No Alarms	5606	15.36
	Days	Years
1 Alarm / 24h	5461	14.96
	Days	Years
2 Alarms / 24h	5323	14.58
	Days	Years
10 Alarms / 24h	4431	12.14
	Days	Years
24 Alarms / 24h	3443	9.43

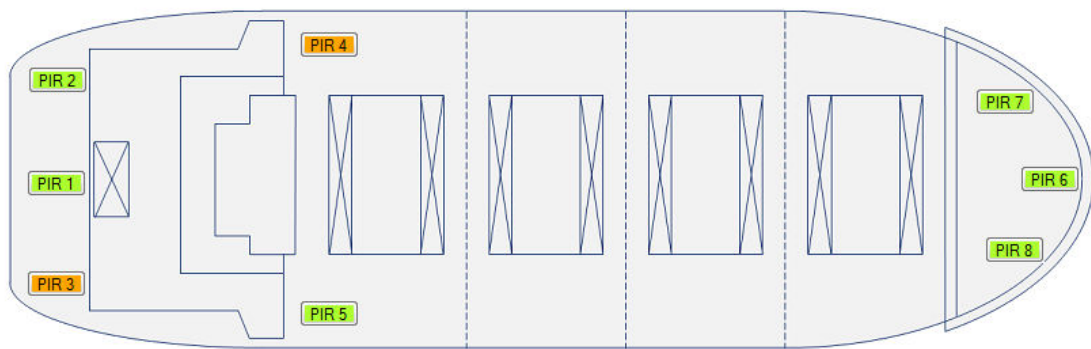
***Part B***

***AUTOGUARD***  
**Optional Drag-n-Drop System**

# *Part B*

## ***AUTOGUARD***

### **Drag-n-Drop Windows PIR Positioning Software**



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**User Manual**

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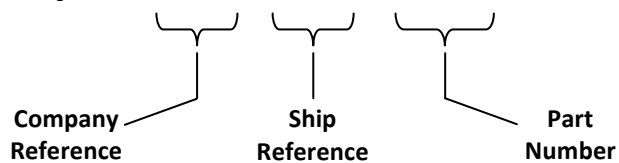
**Ver: 2.1.0.26**





## *Serial Numbers*

**Example : 001 / 001 / 1701**



Please quote serial numbers in any correspondence.

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## ***1. Requirements***

### ***1.1 Hardware***

- Wireless receiver/base station
- Splitter - required if using more than one computer (up to 3 computers in total)
- Distribution panel (if using the fixed position portable panel)
- Drag-n-Drop interface panel (includes serial to USB adapter)
- Suitable PC or laptop with the following minimum system requirements (see below)
- Mouse or pointing device + keyboard

### ***1.2 Software***

#### MINIMUM COMPUTER SYSTEM REQUIREMENTS:

- Software : Microsoft .NET Framework 4 (see below)
- Supported Operating Systems : Windows Server 2003; Windows XP; Windows Vista; Windows 7
- Processor : 400MHz Pentium processor or equivalent (minimum); 1GHz Pentium processor or equivalent (recommended)
- RAM : 96MB (minimum); 256MB (recommended)
- Hard Disk : Up to 500MB of free space may be required
- CD or DVD Drive : Required
- Display : 800 x 600, 256 colours (minimum; 1024 x 768 high colour, 32-bit (recommended)

#### MICROSOFT .NET FRAMEWORK

GUARDIAN : Drag-n-Drop software is designed to operate within the Microsoft .NET Framework environment.

- Microsoft .NET Framework 4 is installed automatically when GUARDIAN : Drag-n-Drop is installed (.NET Framework should already be installed with Windows O/S).
- However, if for any reason this is not the case then Microsoft .NET Framework 4 can be installed manually from the CD

## 2. *Installation*

Please Note: The operating software should be installed on the same drive as Windows (usually C:) for the speaker to operate correctly.

### GUARDIAN : DRAG-n-DROP INSTALLATION

- Insert the CD into computer's CD drive
- Depending on your computer's CD drive's settings the program should start automatically
- If this is not the case...
  - Open Windows Explorer or go to "My Computer"
  - Locate and double click on your CD drive
  - Locate and double click on file – AutoRun.exe
  - Enter serial number exactly as printed on the CD case front i.e. **\*\*\*/\*\*\*/\*\*\*\***
  - Select "Install Software" from the main menu
  - Select "Drag-n-Drop" from the sub-menu options
  - Select ".NET Framework" for the sub-menu options if necessary
- Please refer to the ReadMe for last minute release notes

### GUARDIAN : DRAG-n-DROP OPERATION

- During installation an icon will be added to your desktop
- Double click desktop icon
- or...
- From the Start menu go to All Programs – locate the program listed under EILAND COMMUNICATIONS LTD

### INTERFACE PANEL (INCLUDES SERIAL TO USB ADAPTER)

Connecting the hardware to the PC...

#### Under Windows Vista

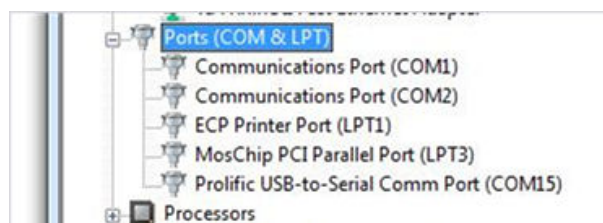
1. Connect the Drag and Drop Interface to a USB port on your computer.
2. When the **Found New Hardware** appears select **Locate and install driver software (recommended)**.
3. Insert the CD provided into your CD-ROM drive and click **Next**.
4. When the installation is done click **Close**.
5. A pop-up message will appear in the notification area indicating the installation is complete. Restart your computer if prompted to do so.

#### Under Windows XP

Note: DO NOT connect the Drag and Drop Interface to your computer before completing the driver installation.

1. Insert the CD provided into your CD-ROM drive. Run the **Setup** file under **x:\Driver\Win98\_XP** where x: is your CD-ROM drive letter. When the welcome screen appears click **Next**.
2. Click **Finish** to complete the installation.
3. Once the installation is done connect the Drag and Drop Interface to a free USB port on your computer.

Check in **Control Panel , System , Device Manager** then **Ports (COM & LPT)** that a port labelled **Prolific USB-to-Serial Comm Port (COMx)** has appeared. Note its designation e.g. COM3. This is the port you should select from the drop down menu when running the client software.



### ***3. General Description***

The Drag-n-Drop option is a bolt-on to the GUARDIAN wireless motion detection system, the basic system having zone indication only. However, the basic system can easily be expanded to allow visual identification and simple interpretation of the detected point of intrusion.

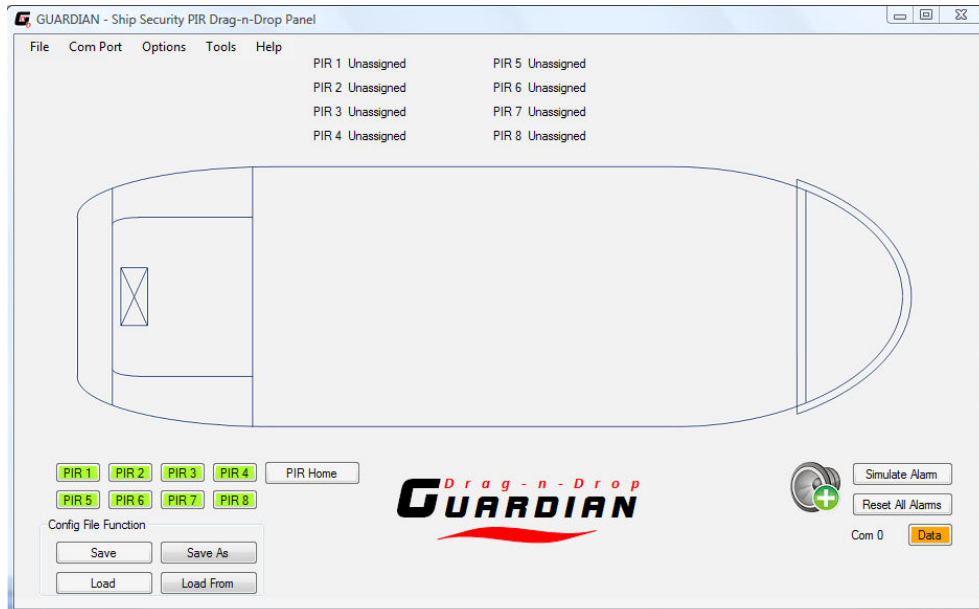
The Drag-n-Drop program allows you to customise the onscreen presentation to match your ship type and the layout of the PIR detectors. Holding down the mouse left button on the PIR icon will allow you to Drag-n-Drop the icon at a location on the ship outline co-incident with the actual physical location that you have place the PIR.

On activation, the affected on screen PIR icon will flash red and an audible alarm will be heard (provided you have not muted the computer's sound output). The alarm will continue till the operator accepts the condition, when the PIR icon will then turn steady red till the alarm is reset, if the PIR is reactivated during this period the alarm will be reinstated. Once the intrusion has been investigated the alarm should be reset, at this time the icon will return to green.

*Drag-n-Drop*

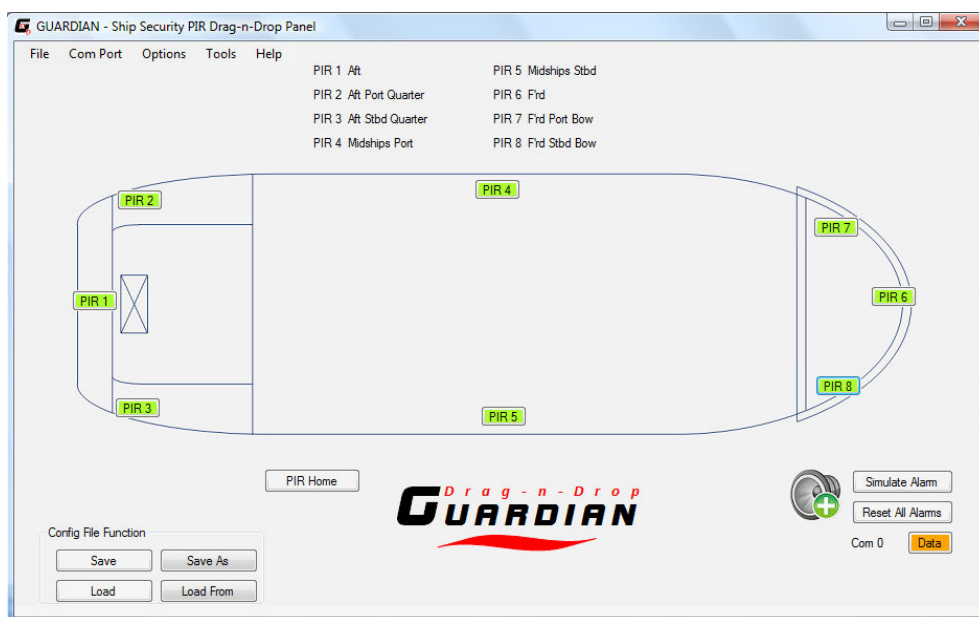
## 4. Operation

### 4.1 Opening Screen – First Run

**Figure 1 : Main Screen**

When the program is first run, the basic un-configured main screen is displayed - see Figure 1, it can be seen that all the PIR icons are parked in the home position. If the interface panel is connected & installed correctly the red data icon will flash green. The speaker is turned on please ensure that the computer's audio is not muted.

### 4.2 PIR Deployment

**Figure 2 : PIRs Deployed***Intrusion Detection*

**Drag-n-Drop**

PIR Deployment – during the physical deployment of the PIR motion detectors, make a note of where each PIR has been situated. Using the computer's mouse, left click & hold on a specific PIR icon and then drag it to coincide with the actual physical position, do this for all the PIR's being used – see Figure 2.

Once in position, right click on the icon and from the new menu click on PIR label.

Select a corresponding position from the drop down list; the selected position will now appear in the PIR position table.

You can also add custom positions to the label list i.e. Main Deck Hatch Entrance No 1.

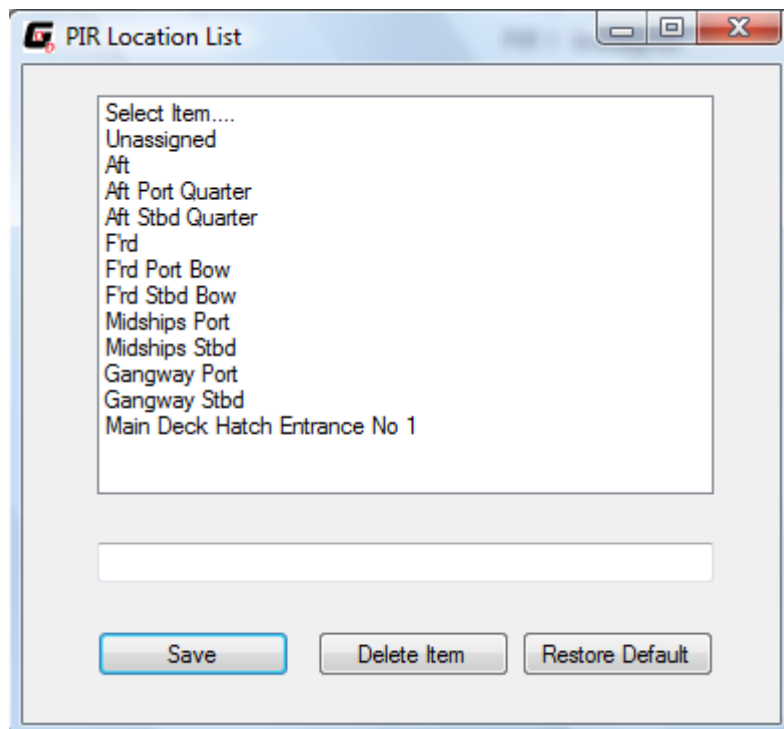
From the Menu Options click on "Custom"

Click on "Edit PIR Location List"

Enter the PIR's location and click Save.

The custom position will now be added to the selectable list.

This custom position will now be available when you right click the PIR icon and select Label.



Once all the PIRs have been deployed click on the "Simulate Alarm" to test that the alarm function is operating correctly. A random PIR will be activated and the audible alarm sounded.

Click on the "Reset All" button to begin using the system.

The program can be run minimised if required, to allow the user access to other programs on the PC.

Once the PIRs are no longer required and have been returned to their storage case, click on the "PIR Home" button to return the PIR icons to their parked position.

**Drag-n-Drop**

### 4.3 Alarm Indication

Alarm Detection: -

If a PIR is activated the corresponding PIR icon will start to flash red and an audible alarm activated (provided the speaker is not muted). With the program minimised the taskbar tab flashes red to indicate an activation. In the maximised state the window panel also flashes.

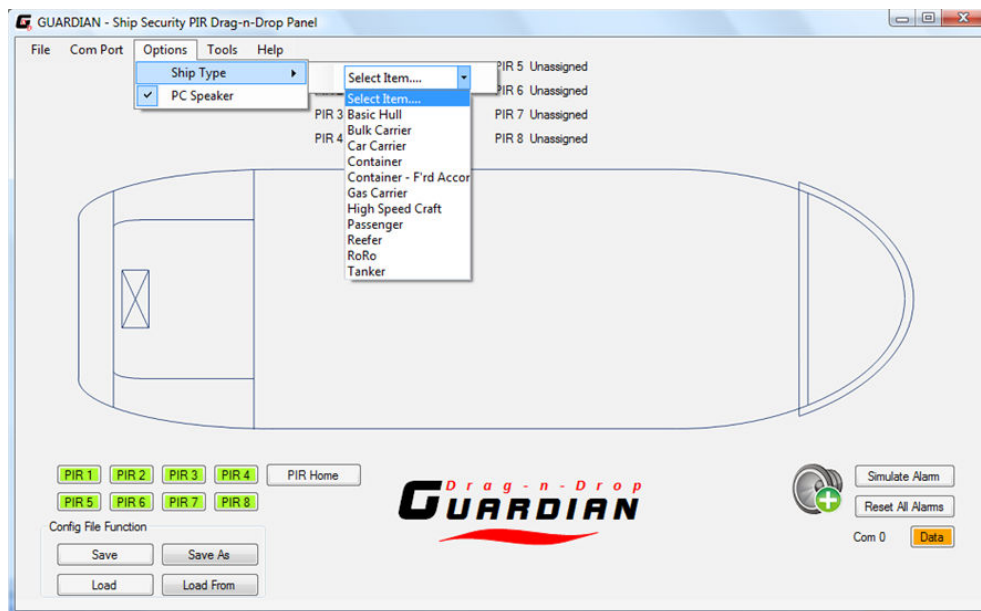
Alarm Acceptance: -

Right click on the flashing icon and click on "PIR Accept Alarm" the flashing red now turns steady red, audible alarm reset, window panel stops flashing.

Alarm Reset: -

Right click on the red icon and select "PIR Reset" to return the icon to its normal state – steady green, or use the "Reset All" button to accept all active icons.

### 4.4 Ship Outline Selection



**Figure 3 : Ship Outline Selection**

To facilitate for differing hull forms and ship types it is possible to select an outline to correspond with your requirements.

From the Options menu click on "Ship Type" then from the drop down menu select the most appropriate outline to match your requirements – see Figure 3.

### 4.5 Save Configuration Changes

The current PIR icon positions can be stored for future use by clicking on the "Save" button, or they can be stored with a specific name using the "Save As" button – you will now be given the opportunity to save the configuration to a location of your choice.

**Intrusion Detection**



*Drag-n-Drop*

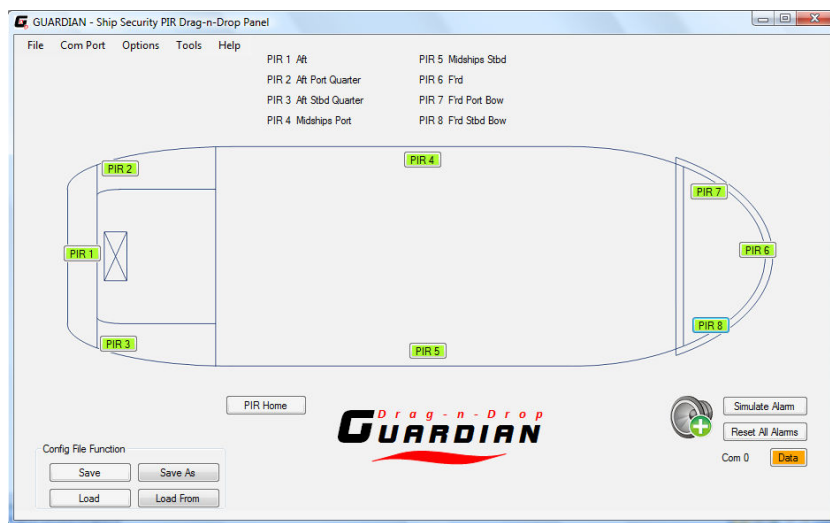
## 5. On-Screen Buttons & Menu Options

The majority of the on-screen buttons have corresponding functions available through the menu options. For those who prefer – these menu functions have keyboard short cuts assigned.

### 5.1 On-Screen Buttons

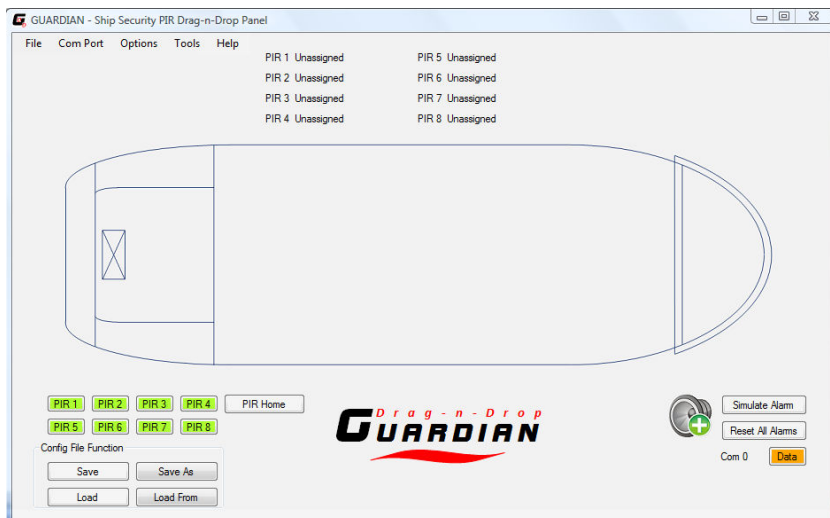
#### 5.1.1 PIR Icons 1 - 8

Drag-n-Drop PIR icons: can be positioned to correspond to actual PIR detector positions.



#### 5.1.2 PIR Home

Returns deployed PIR icons to parked position when not in use.

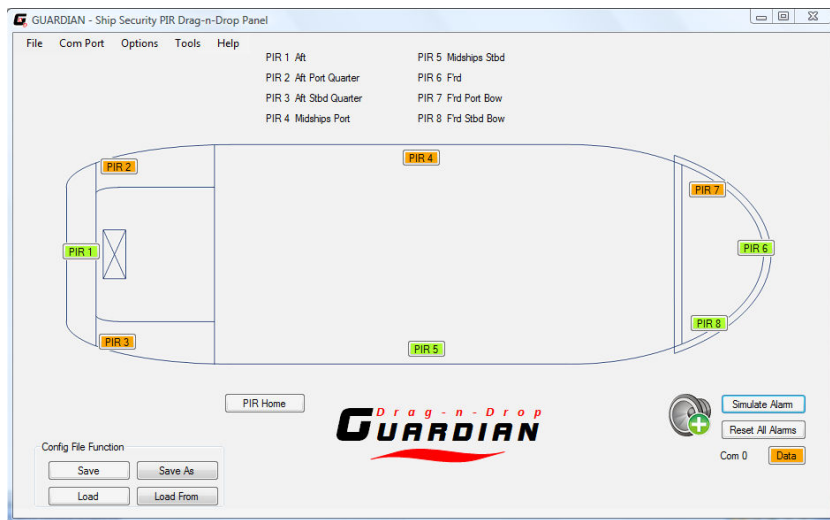


**Drag-n-Drop****5.1.3 Speaker**

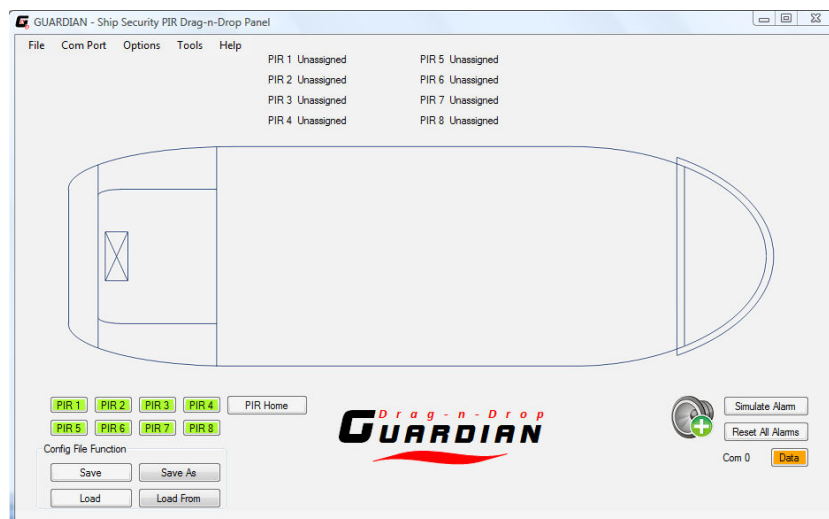
Clicking on the speaker icon turns the audible output on/off (requires the computer's speaker to be on)

**Speaker On****Speaker Off****5.1.4 Simulate Alarm**

Simulates an actual PIR detector operation by randomly activating a PIR icon; useful for testing the volume of the audible alarm.

**5.1.5 Reset All Alarms**

Reset all activated icons simultaneously.

**Intrusion Detection**

**Drag-n-Drop****5.1.6 Data Indication**

Flashing green – Normal condition

Flashing Red – Lost communication with interface panel. Clicking on the Data icon will reset the connection to the interface panel, which should restore communications

**5.1.7 Config File Function**

**Save: -**

Saves current PIR icon deployment configuration

**Load: -**

Loads last PIR icon deployment configuration

**Save As: -**

Saves current PIR icon deployment configuration to a location/directory of your choice – opens up a new directory/file location window.

**Load From: -**

Loads previously saved PIR icon deployment from the location/directory chosen – opens up a new directory/file window.

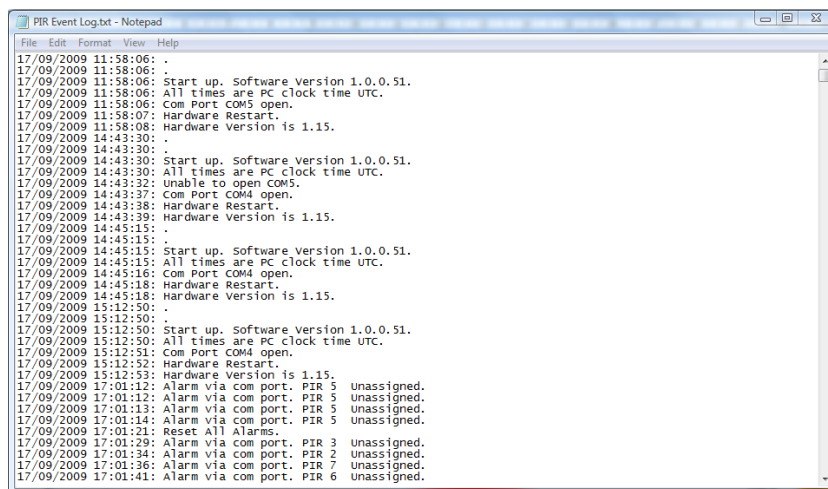
**5.2 Menu Options**

The majority of on screen button operated functions are available through the menu options that include functions available as keyboard short cuts.

The menu functions not already covered in the preceding sections are: -

**5.2.1 File****PIR Event Logging**

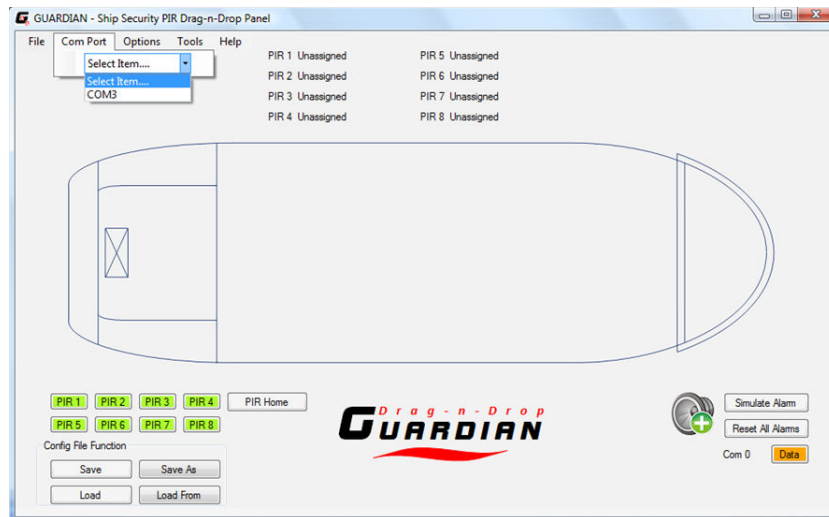
The program logs ALL events i.e. PIR5 activation, PIR5 Alarm Acceptance, PIR5 Alarm Reset...etc. This can be useful for post event analysis.



**Drag-n-Drop****5.2.2 ComPort**

When the interface panel is first installed Windows will assign a Com port for communicating with the program.

When the program first starts, with the interface panel connected, it will look for the Com port assigned during installation, if for any reason this Com port is not found it can be selected from the drop down menu.

**5.2.3 Options****Ship Type**

Select the ship outline from the default list – basic ship types - or customise your own outline using basic Windows image editing tools.

Once an image file has been prepared – see Custom section – it can be imported using the Custom Ship Type option.

**PC Speaker**

Toggle PC speaker on/off

**Load Config on Restart**

Loads present configuration after restarting the program – if not selected then the default settings will be loaded. Toggles option on/off.

**5.2.4 Tools****PIR Home**

Returns the PIR icons to their parked home position

**Reset All Alarms**

Resets any/all activated PIR icons to normal condition.

**Resets Locations to Unassigned**

Resets PIR icon location table to unassigned.

**Drag-n-Drop****5.2.5 Custom****Edit PIR Location List**

You can add custom positions to the label list i.e. Main Deck Hatch Entrance No 1...etc.

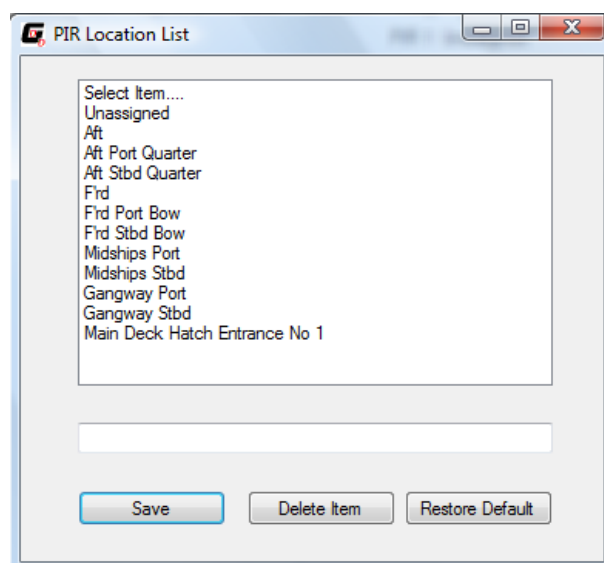
From the Menu Options click on "Custom"

Click on "Edit PIR Location List"

Enter the PIR's location and click Save.

The custom position will now be added to the selectable list.

This custom position will now be available when you right click the PIR icon and select Label.

**Copy Ship Type (Layout) to Clipboard**

Clicking on this menu option, or right clicking on the ship outline, will copy the background ship outline image to Windows clipboard. You can now open your preferred image editor and paste the image for editing.

**Edit Ship Type (Layout) With MS Paint**

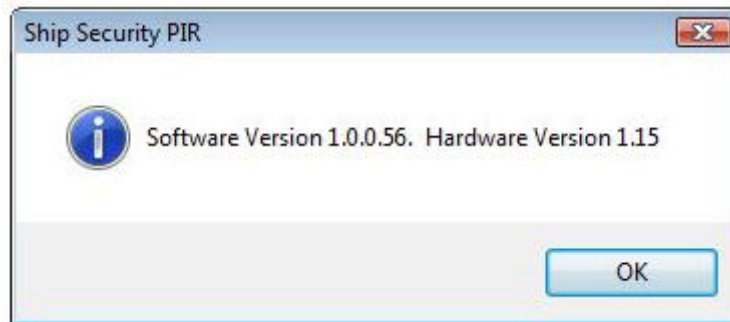
With this option, after copying the image to clipboard it will open MS Paint (default Windows image editor) to allow basic image editing. Provided for computer installations which don't have bespoke image editors.

**Import Ship Layout**

Imports previously prepared jpeg background image.

*Drag-n-Drop***5.2.6 Help****About**

Displays the program's software version and the interface panel's hardware version.

**Technical Manual**

User Manual & technical drawings in pdf format

## ***E. First Line Fault Finding***

Symptom	Probable Cause	Remedial Action
The Com Port designation says COM0 or unable to open Com Port is displayed.	Windows has changed the COM port designation since the last time the software was run.	Select the COM port from the drop down menu. You can check the port in use in device manager to confirm the correct port.
The data light is GREY	Wrong COM port	Select the COM port from the drop down menu. You can check the port in use in device manager to confirm the correct port.
The COM Port is correct but the data light is RED	Hardware Fault	Click the data icon to reset the Interface Box then check the 'About' menu to see if the hardware version appears. If it appears as - ? ?? the Interface Box is either not working, the Com Port is not working (try uninstalling then re-installing) or you have selected the wrong Com Port
Unable to open COM Port	The software is open twice	Close one of the applications
Windows cannot create the file location for saving the Config Files	Occurs in Windows Vista. Windows User Access Control prevents folder creation.	Manually create the folder for the config files.
PC Speaker not sounding even though enabled in software	PC speaker failure or PC speaker volume turned down.	Test the PC speaker by another means eg most PC 'beep' at power up. Check the volume control setting in the Windows Audio settings.

*Drag-n-Drop*



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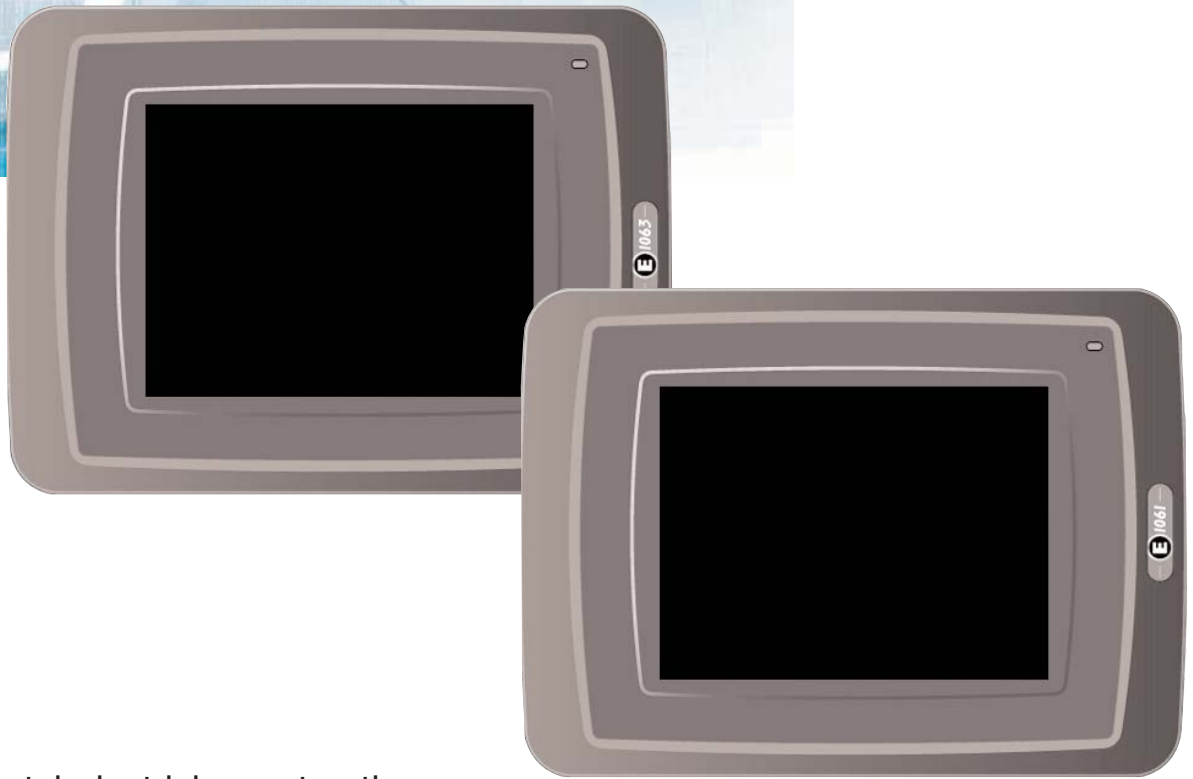
support@cvigil.co.uk  
www.cvigil.co.uk

*Intrusion Detection*



# E1061/E1063

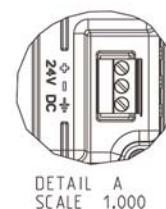
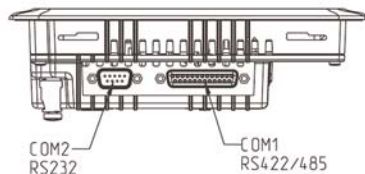
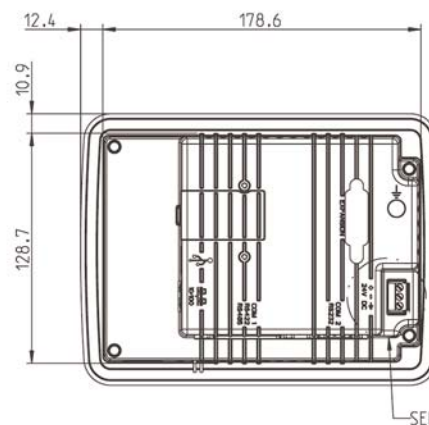
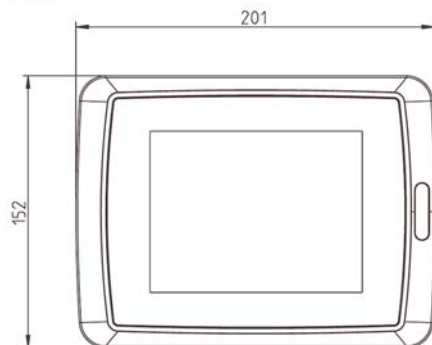
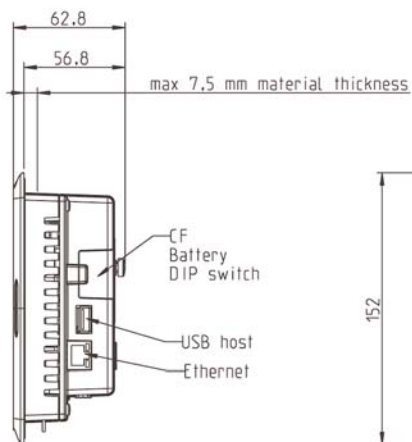
## HUMAN MACHINE INTERFACES



- Compact industrial construction
- Built-in and configurable serial ports (RS232/RS422/RS485\*)
- Expansion option slots
- Real time clock
- Upgradeable terminal firmware and communication drivers
- Programmable function keys
- Programmable multicolored LEDs
- Removable text strips
- Ultra-thin display panel construction
- High resolution display technology
- Built-in 10/100MB Ethernet ports
- Universal Serial Bus (USB) ports (host support)

## E1061/E1063 General Specifications

Model	E1061	E1063
Display Type	STN	
Display Size	5.7"	
Resolution/Pixels	QVGA 320 x 240	
Colors	65K	16 (Grayscale)
Input Type	Touch	
LED / Function Keys	20 / 22	
Alarm Function	7 – 11 groups	
FLASH Memory	12 MB	
Serial Ports	RS232 (9-pin DSUB), combined RS422/RS485 (25-pin DSUB)	
Ethernet	One 10/100 Mbit TP-port	
USB Host	One port for printer, keyboard, mouse, scanner. . .	
Memory Cards	Not available	
Real-Time Clock	Battery backed	
Housing / Front Material	Cast aluminum	
Power Supply	±24 VDC (20 - 30 VDC)	
Dimensions mm (inch)	201 x 152 x 6 (7.9 x 6.0 x 0.2)	
Weight kg (lbs)	0.87 (1.9)	
Max. Current Draw Min. (Max.)	0.25A (0.45A)	
Ambient Temp V (H)	0 – 50°C (0 – 40°C)	



DETAIL A  
SCALE 1.000

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# FX3U

## MELSEC PLC

**A new PLC concept with  
more power and performance**



Increased I/O capacity for advanced network/system control



Up to 4.5 times faster for quicker program response



5 times more data storage to make program construction easier



8 times more memory for larger and more complex programs

# FX3U - A new PLC concept

The new FX3U CPU brings a combination of greater flexibility and increased performance to the FX Family.



## Introduction ///

### New high speed bus

The FX3U design has increased the opportunity to configure the PLC directly for your needs. Following the standard FX Family configuration, the FX3U CPU can be expanded to the right hand side using a wide range of options. The FX3U has an enhanced communications bus that automatically switches into high speed mode for communication with new FX3U expansion modules. Full compatibility is still available with FX2N and FX0N expansion blocks, and when these are configured the FX3U automatically reduces the bus speed to suit.

However, the major benefit for the user is that the analog and positioning adapter units no longer require the use of the traditional To/From instructions to configure and operate.



The FX3U can use new FX3U blocks as well as standard FX2N and FX0N expansion blocks.



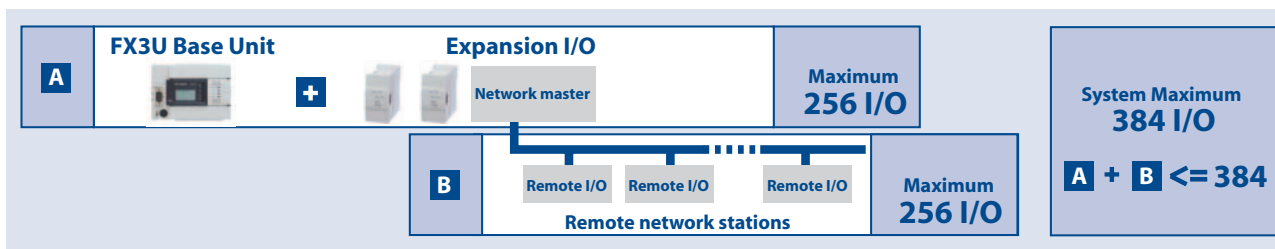
FX3U has a unique new system of directly programmable adapters.

### Adapters add flexibility

A major design enhancement of FX3U is the new adapter expansion bus on the left hand side of the FX3U CPU. Through this bus users can add additional analog and temperature units as well as multiple communications and positioning blocks.

All control is through direct access data registers and setting bits. This means quicker set-up, easier use, and above all much higher processing speeds.

## What's new ///



FX3U provides additional I/O and networking capacity.

### Increased I/O capacity

With enhanced networking functions, the FX3U requires an increased input/output (I/O) range. FX3U can support systems with combined local I/O and networked I/O up to a total of 384 I/O points. For users, this means increased system control and added possibilities for advanced networks.

In addition FX3U also fully supports Profibus/DP as well as Ethernet using TCP and UDP protocols.

### Up to 4.5 times faster

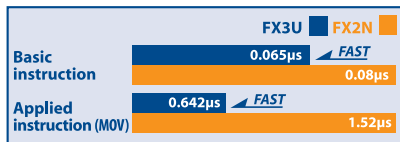
This means the PC MIX value has been greatly improved with basic instructions now being processed in 0.065µsec.

For users this means quicker program response and more accurate process performance as inputs, outputs and actions are processed and monitored more times per second.

## 8 times more memory

FX3U comes with a standard internal memory of 64k steps, which is 8 times more memory than FX2N.

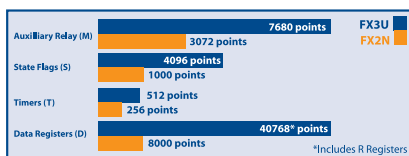
More memory means users can write larger and more complex programs, store more data in file registers, or take greater advantage of using IEC 61131-3 style programming tools.



FX3U provides increased performance in all areas.

## 5 times more data storage

With a larger program memory comes the need for more operational devices such as timers, state flags, auxiliary relays and data registers. The FX3U has increased capacity in all of these major areas making program construction easier. Data register capacity has increased by a factor of 5 reflecting the needs of users who have an increased requirement to log operation information against products or batches of products being manufactured.



FX3U provides increased performance in all areas.

## 75 new instructions

The FX3U has 75 new instructions in comparison with FX2N. This now makes available 209 instructions for program creation. All of the instructions follow the traditional FX Applied instruction concept designed to make the task of application building and program writing easier and quicker, with less chance for errors.

New instructions include greater control over data processing with a range of new comparison and string manipulation commands.

## Simple high speed positioning

The FX3U has been designed with six high speed counters that can each count up to 100kHz simultaneously per channel. This, combined with three 100kHz pulse train outputs, means users can directly configure simple 3-axis positioning systems without the use of additional modules.

However, the new High Speed Counter ADP and Pulse train ADPs can provide the FX3U with maximum positioning performance. Each unit can process signal speeds of up to 200kHz.

## FX3U at a glance

### I/O range

16 – 384 (Discrete I/O, maximum 256)

### Program memory

64k steps (standard)

### Basic instruction processing

0.065µsec/logical instruction

### Analog signal processing

Up to 80 analog inputs,  
48 analog outputs

### Analog resolution

8, 12 and 16 bits

### Analog options

14 analog input, output and temperature blocks available for selection

### Positioning

Internal:

6 high speed counters (100kHz)

2 high speed counters (10kHz)

3 pulse train outputs (100kHz),  
transistor unit only

External:

High speed counter ADP module (200kHz)

Pulse train ADP (200kHz)

Pulse train output block (1MHz)

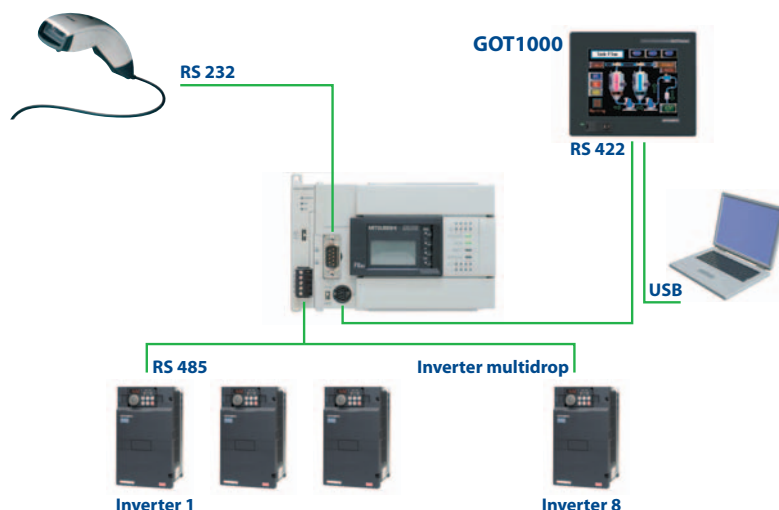
## Improved communications ///

### A great communicator

FX3U has strengthened the communications capability of the FX Family even further.

The new adapters allow up to three RS communication channels to be operated simultaneously allowing multiple HMIs to be connected to a single FX3U CPU or combinations of HMIs, third party devices and programming tools – the choice is yours.

The FX3U also supports a wide range of network options including AS-interface, Profibus/DP, CC-Link, DeviceNet, CANopen as well as Ethernet.



FX3U has a range of flexible communication options.



# Specifications ///

Specifications	FX3U
I/O points (addresses)	Max. total 384 (with remote I/O) Address range Max. 256 direct addressing and max. 256 network I/O
Program memory	64,000 steps RAM (internal), exchangeable FL-ROM for easy program exchange
Cycle period	0.065 µs /basic instruction
Number of instructions	27 sequence instructions, 2 step ladder instructions, 209 applied instructions
Programming language	Step ladder, instruction list, SFC and IEC61131-3 languages using GX IEC Developer
Program execution	Cyclical execution, refreshmode processing
Internal relays	7680
Special relays	512
State relays	4096
Timer	512
Counter	235
High-speed counter	8 points 1 phase (6 points max. 100kHz, 2 points max. 10 kHz); 2 points 2 phase max. 50kHz
Real-time clock	Year, month, day, hour, minute, second, weekday
Data register	8000
File register	32768
Index register	16
Special register	512
Pointer	4096
Nestings	8
Interrupt inputs	6
Communication options	Ethernet (TCP/UDP), Profibus-DP, CC-Link, DeviceNet, CANopen, AS-interface, RS 485, RS 232, USB

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**SIEMENS**



# Factory Automation SIMATIC LOGO! ..0BA6



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**Colin Limbert**

Factory Automation Department

Product Manager  
LOGO! and S7-200

**SIEMENS**

# LOGO! ..0BA6

## Innovated hardware

Overview

Innovated inputs

LOGO! TD text display

3 new plug-in cards

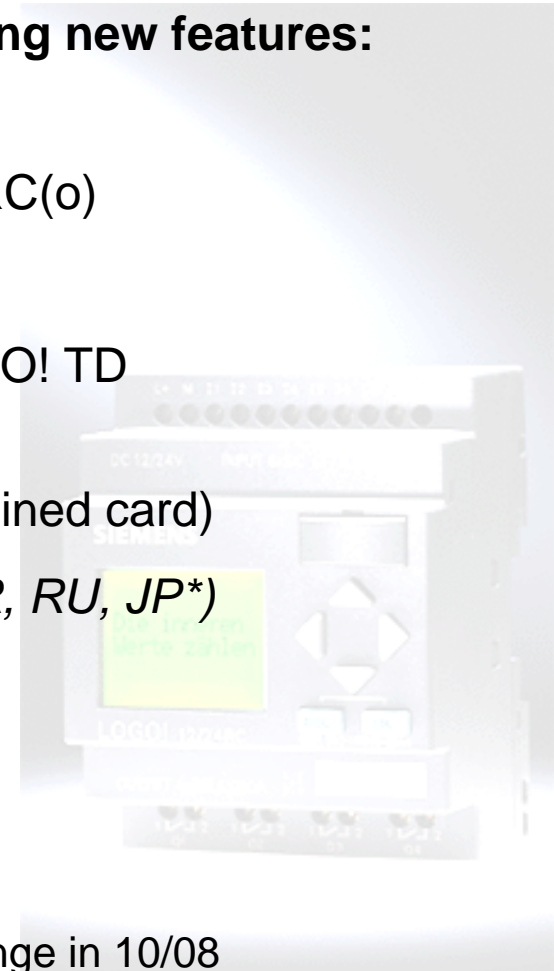




## LOGO! ..0BA6 – Overview

**LOGO! ..0BA6 hardware series provides the following new features:**

- Innovated inputs for LOGO! 24(o) and LOGO! 12/24RC(o)
- LOGO! TD text display
- Backlight function for LOGO! on-board display + LOGO! TD (permanently on/off or controlled by user program)
- 3 new plug-in cards (memory card, battery card, combined card)
- 10 menu languages: (*EN, IT, NL, ES, FR, CN, DE, TR, RU, JP\**)
- Extended memory – 200 FB's



\*) Japanese menu texts will be implemented in a E-stand change in 10/08

## LOGO! ..0BA6 – Innovated inputs

LOGO! 24(o), 12/24RC(o) now with  
4 fast inputs and 4 analog inputs on-board

LOGO! versions with DC power supply now offer:

- 4 fast counter inputs (for frequency up to 5 kHz)  
I3, I4, I5, I6

- 4 analog inputs (0-10V)

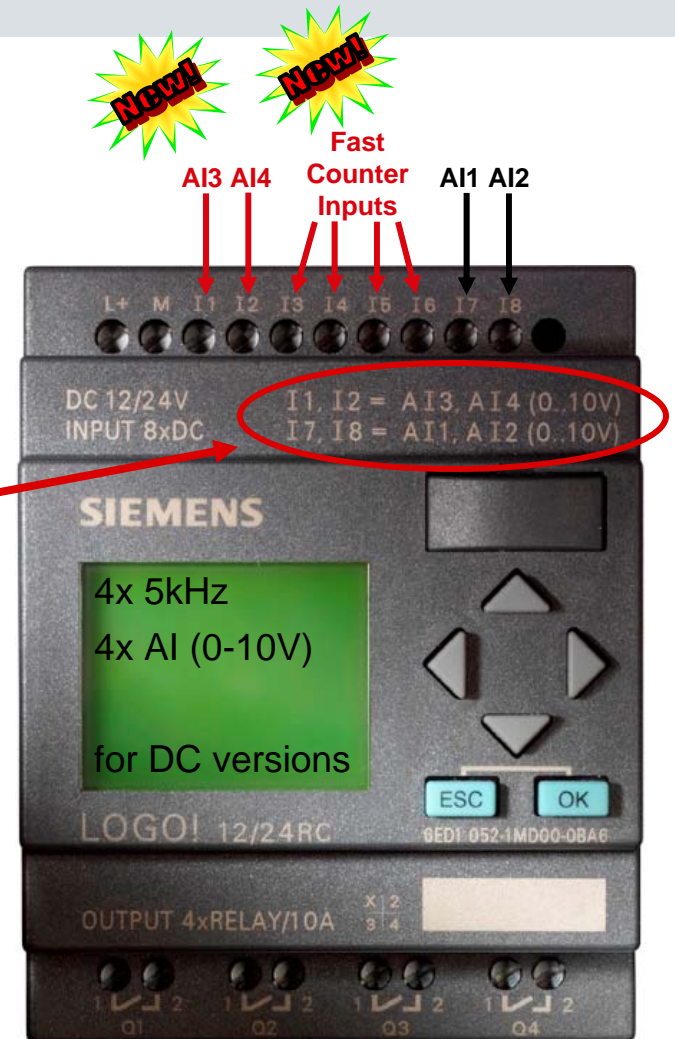
I1=AI3

I2=AI4

I7=AI1

I8=AI2

In LSC V6.0 you must defined weather 2 or 4  
integrated analog inputs are to be used.



## LOGO! ..0BA6 – New separated text display LOGO! TD

### LOGO! TD text display

LOGO! ..0BA6 provides a new text display LOGO! TD.  
The LOGO! TD extends the display and user interface capabilities of all LOGO! basic modules.

LOGO! Soft Comfort V6.0 provides configuration of the following LOGO! TD features:

- Power-on screen
- Function keys
- Message texts
- Backlight function



## LOGO! ..0BA6 – New separated text display LOGO! TD

### LOGO! TD text display

#### Power Supply:

- 12V DC, 24V AC/DC
- unipolar power supply connector

#### Features:

- 4 lines with 12 characters per line
- connectable to all ..0BA6 basic modules via a new interface socket
- Special connection cable is delivered with the LOGO! TD
- 6 standard keys and 4 additional function keys (F1-F4)
- IP65 protection class
- List price £89.00 (incl. cable)



## LOGO! ..0BA6 – 3 new cartridges



LOGO! ..0BA6 supports 3 new cartridge:

- **LOGO! Memory cartridge (violet colour)**  
*(single memory card with doubled memory – 32K)*
- **LOGO! Battery cartridge (green colour)**  
*(single battery card, supports RTC power supply up to 2 years)*  
*(Back up for Clock without a battery is 80 hours at 25°C)*
- **LOGO! Memory / Battery cartridge (brown colour)**  
*(combined memory / battery card)*



### Note:

**LOGO! ..0BA6 still supports the brown memory cartridge from 0BA4/0BA5 (read, not write). i.e. Transfer Cartridge > LOGO!**

**SIEMENS**

# LOGO! ..0BA6

## Innovated software

Overview

New functionalities of LSC V6.0

New function blocks

Updated message text



# LOGO! Soft Comfort V6.0 - Overview

## New features

LOGO! Soft Comfort V6.0 together with the LOGO! ..0BA6 hardware provides the following new features:

- Support of 10 languages (EN, IT, NL, ES, FR, CN, DE, TR, RU, JP)
- Backlight function for the LOGO! ..0BA6 on-board display and LOGO! TD
- Analog modem communication between a PC and LOGO! ..0BA6 (upload, download, online-test)
- Online status for LAD circuit programs
- Display of PI controller analog output value in a trend view during simulation or online test
- Method to delete user program with password in LOGO! ..0BA6 over LOGO! Soft Comfort
- Power-on screen for the LOGO! TD

## Changed functionality

LOGO! Soft Comfort V6.0 provides changes in the following areas:

- Change in daylight savings time period for USA
- Support of all changes in the I/O structure in LOGO! ..0BA6

# LOGO! Soft Comfort V6.0 - Overview

## New Connectors

- 4 function blocks for keys LOGO! TD
- 3 additional flags (M25, M26, M27)

## New Special functions

- Pulse Width Modulator (PWM)
- Analog Math FB and a separate Error detection FB

## Updated Special functions

The following FB's support new features:

- Message text
- PI-controller
- Operation hours counter
- Weekly timer
- Yearly timer
- Analog watchdog
- Up/down counter

Additionally, LSC V6.0 supports new [reference parameters](#) for many blocks.

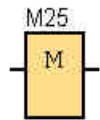


# LOGO! Soft Comfort V6.0 – New connectors & Markers

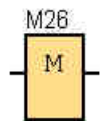


**LOGO! TD Function keys**

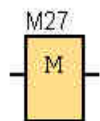
**N.B. Connectors don't count as Function Blocks**



**M25: controls the backlight of the LOGO! on-board display**



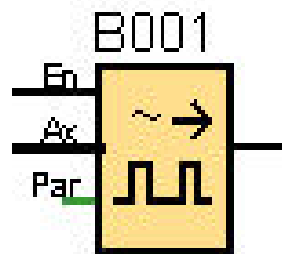
**M26: controls the backlight of the LOGO! TD text display**



**M27: enables the primary or the secondary character set for the message text**

**N.B. Markers don't count as Function Blocks**

# LOGO! Soft Comfort V6.0 – New FBs: Pulse Width Modulator (PWM)



The PWM function modulates the analog input value Ax into a digital output signal.

The pulse width is proportional to the analog value Ax.

**B003 [PWM]**

Parameter | Comment

Block name:

Sensor: 0 ... 10 V

Measurement Range

Minimum:  I

Maximum:  I

Parameter

Gain:  I

Offset:  I

Range Min:  I

Range Max:  I

Periodic time:  I :  I Seconds (s:1/100s)

Decimals in the message text:  I +12345

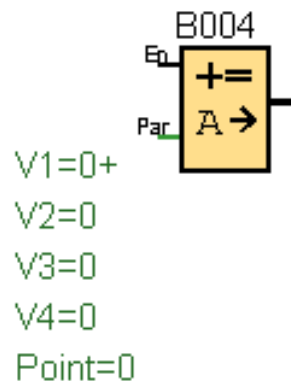
☐ Protection Active

Reference

OK Cancel Help

# LOGO! Soft Comfort V6.0 – New FBs: Analog Math and Analog Math Error Detection

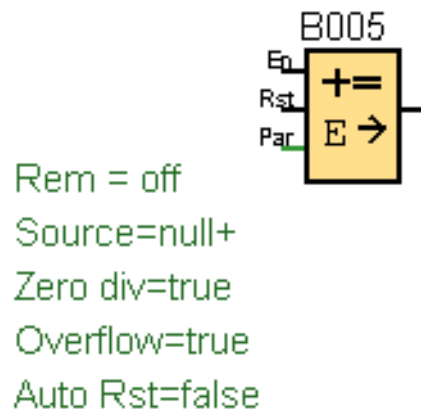
## Analog Math



With this new function basic arithmetic operations are possible ( + , - , x , / ) .

The result is an internal analog value (-32768 - +32767).

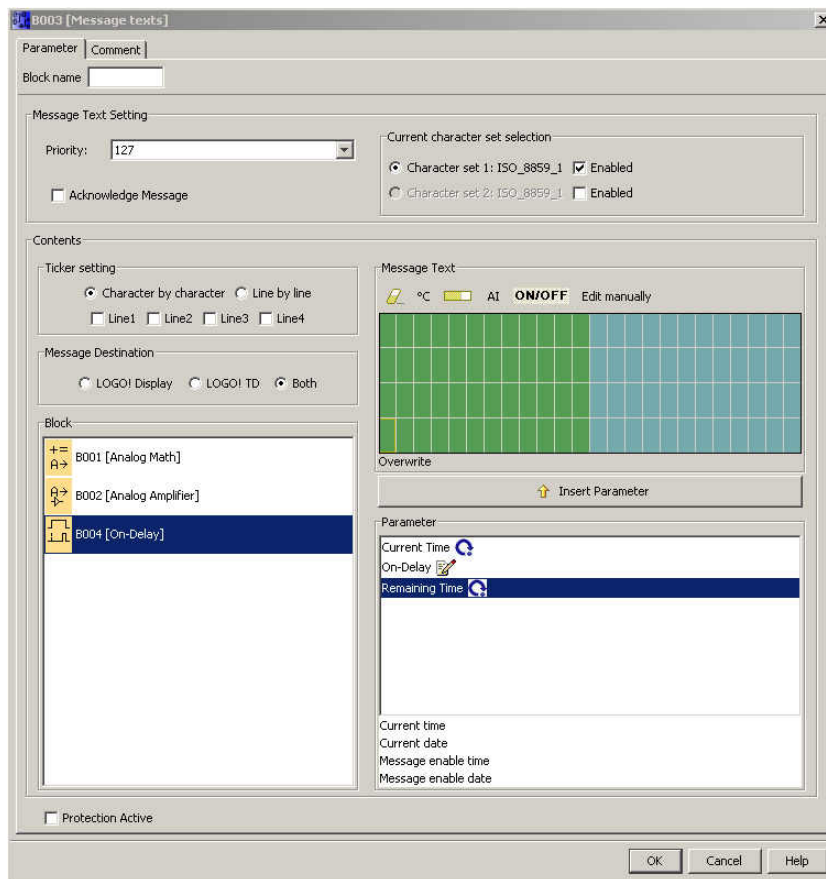
## Analog Math Error Detection



With this new function it's possible to handle both error cases of the Analog Math FB:

- Overflow
- Division by zero

# LOGO! Soft Comfort V6.0 – Updated message text



## New features:

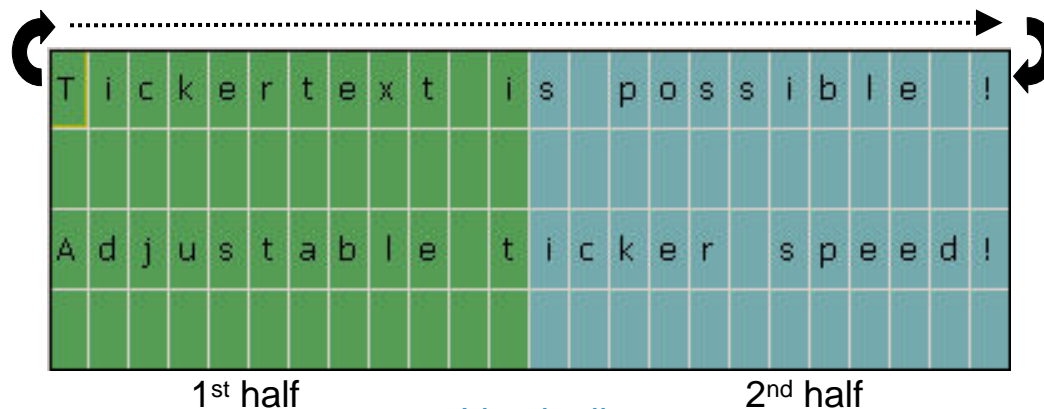
- Up to 24/32 characters per line
- Properties for the ticker text
- Bar graph functionality
- Selection of message destination
- Display state of analog values
- Digital I/O states
- Selection / enabling of different character sets
- Display of remaining time of all timers

# LOGO! Soft Comfort V6.0 – Updated message text

## 2 possibilities for the ticker text:

Character by character ...

(one character after another tickers through the display)



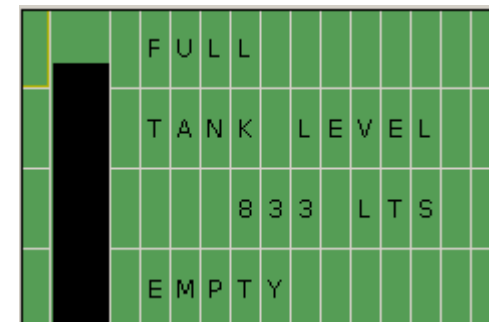
... or Line by line

(the display alternates between the 1<sup>st</sup> half and the 2<sup>nd</sup> half of the message text)

Ticker speed can be adjusted by software or via LOGO! TD

## Bar graph indication

It is possible to place a bar graph for the actual value of special function blocks in the circuit program.



Placement: Horizontal / Vertical

Max. 32 bar graphs per project

Max. 4 bar graphs per message

# LOGO! Soft Comfort V6.0 – Updated message text

## Status indication of digital inputs/outputs and analog inputs

### Digital I/O state

The screenshot displays the 'Message Text' window for digital I/O. It shows a table with 4 I/O states: I 3 (ON), I 4 (ACTIVE), Q 1 (ON), and Q 2 (OFF). Below this, the 'IO status name' dialog box is open, allowing the user to define custom text for each state. The circuit diagram shows a ladder logic network with inputs I 3 and I 4 connected to a coil B002, which is then connected to output Q 1.

I/O	State
I 3	ON
I 4	ACTIVE
Q 1	ON
Q 2	OFF

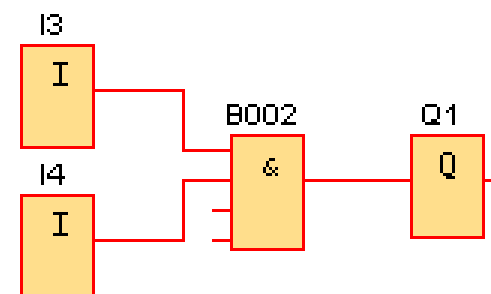
- 4 I/O states in one message text
- 20 I/O states in one circuit diagram
- User can define his own text for each state

### Analog AI state

The screenshot displays the 'Message Text' window for analog AI. It shows a table with 2 AI values: AI 1 (970) and AI 2 (560). Below this, the 'AI filter' dialog box is open, allowing the user to select which AI values to display. The message text window shows the AI values in a table format.

AI	Value
AI 1	970
AI 2	560

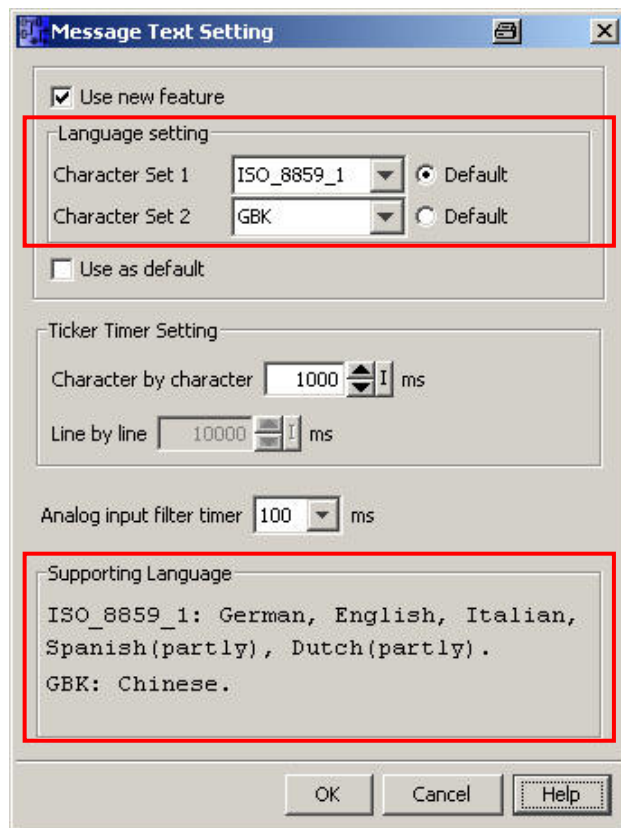
- The internal analog input value 0...1000 of any AI can be shown in a message text
- 2 AI values in one message text



I 3 :	O N
I 4 :	A C T I V E
Q 1 :	O N

# LOGO! Soft Comfort V6.0 – Updated message text

## Selection/enabling of character sets



LOGO! ..0BA6 supports 10 languages.

To ensure, that all characters / signs of a language used in a message text can be displayed correctly, it is possible to activate an alternative character set.

In a message 2 text character sets can be enabled. By using new flag M27 the user can switch between the 2 character sets.

6 character sets are available:

ISO_8859_1	German, English, Italian, Spanish (partly), Dutch (partly)
ISO_8859_5	Russian
ISO_8859_9	Turkish
ISO_8859_16	French
GBK	Chinese
SJIS	Japanese (partly)